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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,624	07/06/2005	Joerg Sabczynski	DE030003US1	8349

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS  
P.O. BOX 3001  
BRIARCLIFF MANOR, NY 10510

EXAMINER
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BOR, HELENE CATHERINE

ART UNIT	PAPER NUMBER
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3768

MAIL DATE	DELIVERY MODE
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06/26/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/541,624	<b>Applicant(s)</b> SABCZYNSKI ET AL.	
	<b>Examiner</b> HELENE BOR	<b>Art Unit</b> 3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,4-9,11-13 and 17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-9,11-13 and 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claim 1, 4-9, 12-13 & 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strommer (US Patent No. 2002/0049375 A1), in view of Nehrke (US Patent Application No. 2002/0026115 A1) and further in view of Simpson et al. (US Patent No. 2001/0052899 A1).

**Claim 1, 11 & 17:** Strommer teaches a method of tracking an instrument that is inserted into the body of a patient (Page 3, Para 0030). Strommer teaches detecting a movement signal which represents movement phases of a periodic internal movement of the body [detecting an organ timing signal of the inspected organ] (Page 3, Para 0033). Strommer teaches the detecting of the movement signal being performed by an ECG monitor or a respiratory monitor (Page 10, Para 0149). Strommer fails to teach the movement signal comprising of both an electrocardiogram movement signal and a breathing movement signal. Strommer does teach that it is within the skill of one in the art to select the appropriate medical monitoring device selected according to the inspected organ (Page 10, Para 0149). Nehrke teaches that heart motion is a result of the cardiac cycle and respiratory motion (Page 1, Para 0014). Therefore it would have been within the skill of one in the art to modify the method with the using the ECG and respiratory monitor of Strommer to compensate for the cardiac movement caused by the respiratory motion and the cardiac motion as taught by Nehrke in order to have a

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more accurate motion compensation (Page 1, Para 005). Strommer teaches generating 2D images of a body volume of interest [the image detector detects two-dimensional images], and storing each 2D image [processor/computer] in an image database together with associated imaging parameters [orientation; described as “projection direction” on Page 2 of Specification] and an associated movement phase [organ timing signal] (Page 4, Para 0038, Page 7, Para 0109-0110, Page 8, Para 0118 & Page 10, Para 0152). Strommer teaches measuring a current spatial position of the instrument [MPS] (Page 3, Para 0036 & Page 4, Para 0038) and a corresponding movement phase of the periodic internal movement of the body [associated by the processor] (Page 4, Para 0038). Strommer teaches selecting at least one 2D image from the image database, wherein selecting the at least one selected 2D image corresponds in terms of taking place only in response to ascertaining whether its associated movement phase corresponds to the movement phase belonging to the current measured spatial position of the instrument (Page 3, Para 0036). The Examiner notes that Strommer does not specifically teach that otherwise the selecting does not take place, however, it is inherent that the selecting would not take place if the movement phase was not associated with the current measured spatial position. Strommer teaches determining the position of the instrument [MPS] on the at least one selected 2D image (Page 4, Para 0038-0039 & 0043), wherein determining the position of the instrument on the at least one selected 2D image includes using extrapolation to calculate a superposed position of the instrument on the 2D image (Page 4, Para 0043-0044 & Page 8, Para 0122), and wherein determining further includes compensating for a breathing-induced

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movement of a given body part within the body volume of interest based on a measured breathing position (Page 9, Para 0136 & Page 10, Para 0148-0149). While Strommer fails to specifically teaches interpolation, Nehrke teaches that interpolation and extrapolation are imaging techniques (Page 2, Para 0015) used to fill in “missing” information of the visual image (Page 2, Para 0016). It would have been obvious to one of ordinary skill in the art to modify the system of Strommer and Nehrke to include the interpolation as taught by Simpson in order to fill in “missing” information of the visual image (Page 2, Para 0016). Strommer teaches superposing the determined position of the instrument on the at least one selected 2D image (Page 4, Para 0044 & Page 8, Para 0122). Strommer fails to teach the movement model of the body part. However, Nehrke teaches that a movement model [motion] is necessary for measuring two motion parameters [heart and lung movement] (Page 1, Para 0002 & Page 3, Para 0040). It would have been obvious to modify the system of Strommer to include the movement model as taught by Nehrke which is necessary for measuring two motion parameters [heart and lung movement] (Page 1, Para 0002 & Page 3, Para 0040).

**Claim 4:** Strommer teaches 2D images from a single movement phase are available for selection from the image database (Page 18, Para 0245). Strommer also teaches selecting a cycle in synchrony with the ECG signal (Page 18, Page 0245).

**Claim 5:** Strommer teaches a method steps b & c - e are carried out a number of times (Page 7, 0110-0111) and in varying order (Figure 10 & Figure 22).

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**Claim 6:** Strommer teaches a method wherein the associated image parameters in the image database for corresponding 2D images include various projection directions (Page 7, Para 0110-0111 & Page 8, Para 0119).

**Claim 7:** Strommer teaches a method wherein the 2D images are generated by means of X-radiation and/or ultrasound (Figure 12, Element 404 & Page 7, Para 0101).

**Claim 8:** Strommer teaches a method wherein a sensor [reference probe] is mounted on the image detector of the two-dimensional image acquisition system (Page 6, Para 0093). Strommer further teaches that the image acquisition system consists of a two-dimensional image acquisition device (Page 7, 0100) wherein the two-dimensional image acquisition device can be of any type known in the art, such as an x-ray (Page 7, Para 0101).

**Claim 9:** Strommer teaches a method wherein at least one sensor [reference probe] is arranged on or in the body of the patient (Page 6, Para 0093).

**Claim 12:** Strommer teaches an arrangement wherein it is designed for carrying out a method as claimed 1 (Figure 12).

**Claim 17:** Strommer teaches an instrument tracking system comprising at least one reference probe positioned on at least one of the means for generating 2D images and the body (Page 6, Para 0093 & Figure 12, Element 420).

### ***Response to Arguments***

3. Applicant's arguments, see Page 7, filed 04/08/2008, with respect to the claim objections have been fully considered and are persuasive. The objection of the claims has been withdrawn.

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4. Applicant's arguments filed 04/08/2008 have been fully considered but they are not persuasive. While the Examiner respectfully disagrees with the Applicant's submitted arguments, the Examiner upon review of the claims notes deficiencies within the rejection, specifically to the movement model. In response to the Applicant's arguments, the Applicant alleged that the prior art did not teach the claim subject matter as a whole. The Examiner respectfully disagrees and has edited the rejection above for better clarification and explanation. The Applicant submitted arguments that Examiner has not provided any incentive or motivation supporting the desirability of the combination. The Examiner respectfully disagrees. The Examiner stated that it would have been obvious to one of ordinary skill in the art to compensate for the cardiac movement caused by the respiratory motion and the cardiac motion as taught by Nehrke in order to have a more accurate motion compensation (Page 1, Para 005). The Examiner contends the combination did not arise from hindsight and motivation was provided for the resulting combination.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HELENE BOR whose telephone number is (571)272-2947. The examiner can normally be reached on M-T 8:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long V. Le can be reached on (571)272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. B./  
Examiner, Art Unit 3768

/Eric F Winakur/  
Primary Examiner, Art Unit 3768